

**SYNAR COMPLIANCE CHECK REPORT FOR UTAH  
FFY-1997**

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## **Background**

In 1992, Congress passed the Synar Amendment to the Alcohol, Drug Abuse and Mental Health Administration Reorganization Act. The objective of the Synar Amendment (Section 1926) is to reduce the sale and distribution of tobacco products to individuals under the age of 18.

The main requirements of the new law include:

1. A state law prohibiting the sale or distribution of tobacco products to persons under 18 years of age;
2. Random, unannounced inspections of both over-the-counter and vending machine outlets for tobacco products to produce credible annual estimates of the statewide sale rate of tobacco products to minors;
3. A report from each state to the Secretary of Health and Human Services demonstrating enforcement of the law through progress toward the goal of no more than 20 percent of purchase attempts made by youth resulting in obtaining tobacco products. (The Synar Regulation: Tobacco Outlet Inspection Guidance-3rd Draft SAMHSA 1996).

The proposed regulations are based on the assumption that enforcement of the minors' access law will lead to increased compliance, as measured by a decrease in the number of outlets making illegal sales to minors.

Successful implementation of the Synar Regulation is important for several reasons. First, it will facilitate the reduction of both current and future health problems among adolescents. Second, compliance with the law is consistent with the public's support of measures to prevent the use of tobacco by young people and, specifically, efforts to discourage tobacco sales to minors (U.S. Department of Health and Human Services, 1994). Finally, successful implementation of the Synar Regulation is important to the state in order to continue receiving their full substance abuse block grant funding.

**Utah Tobacco Law:** Under Utah's Tobacco Laws, selling tobacco to anyone under the age of 19 is unlawful.

## **Study Purpose**

The purpose of this study is to determine the status of enforcement of the minor's access law by measuring non-compliance rates. This study represents Utah's second applicable fiscal year. The main objective of the study is to measure the "non-compliance" or "failure" rate for Utah tobacco outlets. The "non-compliance rate" is defined as the proportion of all outlets at which an inspection or compliance check results in a sale, or a willingness to sell, to a youth under 19 years of age.

This study represents a collaborative effort between the State Department of Health, State Division of Substance Abuse, and local health and law enforcement agencies.

### **Literature Review**

Smoking kills 434,000 Americans each year. Cigarette smoking is still considered the chief preventable cause of premature disease and death in the United States. According to the “Monitoring the Future Study, 1975-1994” (1995), 31% of high school seniors in 1994 were current smokers and 19% already were current daily smokers. These numbers are rising among high school seniors and rising even faster among younger students (19% of 8th graders were current smokers, 9% were daily smokers). Initiation of daily smoking most often occurs in grades 6 through 9 (or at modal ages 11-12 to 14-15; MTFS 1995).

The Utah School Survey done in 1994 (Bahr, 1995) shows that tobacco use decreased from 1984 to 1989 but there was no real change from 1989 to 1994. In 1984, 16% students in grades 7-12 used tobacco during the past month, compared to only 13% in 1989 and 14% in 1994. The cigarette use increased from 9.6% in 1984 to 12.4% in 1994.

A comparison of cigarette use in the U.S. and Utah by grade reveals that 62% of high school seniors in the U.S. have smoked cigarettes sometime in their lives, compared to 34% in Utah. Among U.S. eighth-graders, 45% have tried cigarettes compared to 24% of Utah eighth-graders. However, the difference between U.S. and Utah is much less when comparing the current use (past 30-day) of cigarettes among 8th graders (16.7% vs 11.4%).

The recent 1996 Utah Youth Household Survey also shows that the use of tobacco products has increased from 8.3% in 1992 to 9.7% in 1996 among 12 to 17-year-olds (Dan Jones & Associates, 1997).

Tobacco use is associated with a range of problem behaviors during adolescence. Smokeless tobacco or cigarettes are generally the first drugs used by young people in a sequence that can include tobacco, alcohol, marijuana, and hard drugs. This pattern does not imply that tobacco use causes other drug use, but rather that other drug use rarely occurs before the use of tobacco. Still, there are a number of biological, behavioral, and social mechanisms by which the use of one drug may facilitate the use of other drugs, and adolescent tobacco users are substantially more likely to use alcohol and illegal drugs than are nonusers (USHHS, 1994).

Efforts to reduce tobacco use among adolescents must focus on education and limiting access. A crucial element of prevention is access; adolescents should not be able to purchase tobacco products in their community. Active enforcement of age-at-sale policies by public officials and community members appears necessary to prevent minors' access to tobacco.

## **Methodology**

The methodology for this study was based on the SAMHSA publication “Synar Regulation: *Sample Design Guidance, 1996.*”

**Study Population:** The study population is a collection of tobacco outlets in Utah that are accessible to youth.

**Sampling Frame:** The State License list (received from Department of Health) was used as the sampling frame to select a statewide representative sample of outlets. The list contained the name of the outlet, location, county, zip code, and license number. A total of 1,040 outlets were identified in that list. The total outlet number has decreased significantly from 1,392 (FFY 96) to 1,040 (FFY 97) due to modification of the list in the database. This year’s list represents the most up to date and accurate outlet information.

**FFY 97 Sampling Procedure:** The stratified random sampling procedure was used to estimate the sample size for the FFY 1997 compliance check study. There are 29 counties in the state. For sampling convenience, the state was divided into 12 homogeneous subdivisions called strata by combining counties belonging to the same geographic location. The subdivisions, or strata, are similar to “State Health Districts.” Initially, 370 outlets was selected as a minimum sample size required for this study with a  $\pm 4\%$  margin of error at 95% confidence level. To account for the nonoperating outlets, sample size was inflated to 411. It was assumed that more than 90% of the outlets on the list were operating. The final sample was allocated within the different strata using the proportional allocation procedure according to the stratum size of outlets in the population (using formula-3 in the APPENDIX-A). Simple random sampling without replacement was used to select the sample from each stratum. The allocation of 411 outlets to each stratum is shown in Table A.

<b>Table A: Distribution of tobacco outlets by stratum for the State of Utah for FFY 97</b>			
Strata	Geographic Sampling Unit	Total number of outlets (N <sub>i</sub> )	Sample outlets (n <sub>i</sub> )
1	Bear River Health District (Box Elder, Cache & Rich county)	50	20
2	Central Utah Health District (Juab, Millard, Piute, Sevier, Sanpete, & Wayne county)	61	24
3	Davis Health Dist. (Davis county)	46	18
4	Uintah Basin Health Dist. (Daggett, Duchesne, & Uintah county)	27	11
5	Iron, Washington, & Beaver county	118	46
6	Garfield, Kane & San Juan county	65	26
7	Utah county H. D. (Utah county)	155	62
8	Summit & Wasatch county	38	15
9	Weber-Morgan Health Dist. (Weber & Morgan county)	135	53
10	Tooele H. D. (Tooele county)	24	9
11	Carbon, Emery & Grand county	46	18
12	Salt Lake Health Dist. (Salt Lake County)	275	109
Total		1040	411

**Random Unannounced Inspection (RUI) Procedure:** Inspections were done by youth from individual cities under the direct supervision of local police. Health Department staff recruited, trained, and scheduled the youth. For FY 97, the inspections were conducted during the period of April, 1997 to August, 1997. The administrative steps of the compliance check procedure are shown in a flow chart provided on the next page.





## **Findings**

### ■ **Response rate and non-participating counties**

A total of 411 tobacco outlets were allocated for inspection this year. However, purchase attempts were made in only 380 outlets, giving a 92% response rate. The following six counties did not participate in the survey: Daggett, Duchesne, Uintah, Juab, Piute, and Rich.

### ■ **Total purchase attempts and completed inspections**

A total of 380 purchase attempts were made. A complete inspection was possible in only 70% (n=264) of the outlets. The inspection involved a minor entering the outlet and attempting to purchase a tobacco product. As shown in Table 1, inspections were not made in about 16% of outlets due to time constraints. Almost 5% of the outlets did not sell tobacco products. The inspection was also not feasible in another 5% of the outlets because the inspection was not allowed or the site was not accessible to minors.

**Table 1:** Distribution of outlet status in the sample

<b>Outlet Status</b>	<b>N</b>	<b>Percent</b>
Compliance check was made	264	69.5
Not in business	6	1.6
Closed at the time of compliance check	3	0.8
Not located at the address given	3	0.8
Not reached in time available	61	16.1
Judged unsafe for minors	4	1.1
Didn't sell tobacco products	18	4.7
Sold tobacco but not accessible to minors	9	2.4
Compliance check was not allowed	10	2.6
Duplicate outlet	2	0.5

### ■ **Sale rate**

The current sale rate for Utah is 28% with a  $\pm 5\%$  margin of error at the 95% confidence level. The standard error of the estimate is about 2.8%.

## ■ Characteristics of the minors

About 43% (n=113) of the minor buyers participating in this survey were between ages 14-16. Over half (52%) of the minors were 17-years-old. Five percent were 18 years old. Utah's unique tobacco law prohibits the sale of tobacco to anyone under the age of 19. Therefore, we also added 18-years-old minors for this compliance check.

As shown in Table 2, out of a total 74 successful tobacco sales, 70 (95%) were made to minors age 17 years and younger, and 4 (5%) were to 18-year-old minors.

More than half of the minor buyers (56%, n= 148) were males. Table 3 shows that 29% of the female minors were successful in buying tobacco compared to 27% of males. Female minor buyers below the age of 18 were more successful than male buyers in purchasing tobacco (Table 2). This particular finding is consistent with the compliance study done last year. This also confirms the findings of national studies showing that females are more successful in purchasing tobacco than their male counterparts. The only exception was, in Utah's study, when buyers were 18 years of age, males were more successful than females (50% vs. 25%).

**Table 2:** Numbers of attempted and successful buys by age and gender

	14-15 yrs		16-17 yrs		18 yrs	
	Attempted	Successful	Attempted	Successful	Attempted	Successful
<b>Male</b>	19	0 (0%)	127	39 (30.7%)	2	1 (50.0%)
<b>Female</b>	29	5 (17.2%)	74	26 (35.1%)	12	3 (25.0%)
<b>Total</b>	48	5	201	65	14	4

**Table 3:** Sale by gender of minor

Gender of minor			
Sale	Female	Male	Total
Yes	34 (29.3%)	40 (27.0%)	74 (28.0%)
No	82 (70.7%)	108 (73.0%)	190 (72.0%)
Total	116	148	264

## ■ Time of the compliance checks

More than half (54%, n=143) of the compliance checks were made in the afternoon between 1:00 - 6:00 p.m. About thirty-eight percent of the compliance checks were

made during the hours of 6:00 p.m. to 12:00 a.m. The remaining 8% were made during the morning hours.

The tobacco sale rates for morning (8:00 - 11:00 a.m.), afternoon (1:00 - 6:00 p.m.), and evening (6:00 p.m. - 12:00 a.m.) were 41%, 27%, and 27% respectively. It seems that buyers were more successful in purchasing tobacco products during the morning hours than in afternoons or evenings.

#### ■ **Outlet type**

The distribution of completed inspections by outlet type are presented in Table 4. Of all the compliance checks completed, 57% (n=150) were convenience stores, 17% were grocery stores, and 16% were gas stations. The remaining outlet types included: discount stores, recreation, fast food restaurants, motels, etc.

**Table 4:** Distribution of outlet type in the sample

<b>Outlet type</b>	<b>N</b>	<b>Percent</b>
<b>Bar/private club</b>	2	.8
<b>Convenience store</b>	150	57.5
<b>Drug store</b>	6	2.3
<b>Grocery store/supermarket</b>	44	16.9
<b>Gas station</b>	42	16.1
<b>Gen. merchandise/disc. Store</b>	7	2.7
<b>Recreation</b>	6	2.3
<b>Restaurant/fast food stores</b>	3	1.1
<b>Tobacco Retail</b>	1	.4

The sales by outlet type are shown in Table 4a. Although the variation in sample sizes made the sale rates quite incomparable for some types of outlets, it seems that the buyers were more successful in purchasing tobacco in gas stations and convenience stores than in grocery stores or supermarkets.

Table 4a: Sales by outlet type

Outlet type	Total # of outlets inspected	Sale rate
Bar/private club	2	0.0
Convenience store	150	26.7
Drug store	6	33.3
Grocery store/supermarket	44	22.7
Gas station	42	28.6
Gen. merchandise/disc. Store	7	28.6
Recreation	6	66.7
Restaurant/fast food stores	3	33.3
Tobacco Retail	1	100.0

#### ■ Sales person

The majority (68%, n=179) of the sales clerks at the time of inspection survey were female. It appears from Table 5 that both female and male clerks sold slightly more to female buyers than male buyers. This observed trend is also consistent with the compliance study done last year.

**Table 5:** Numbers of attempted and successful buys by gender of minor and gender of clerk

Minor Buyers	Male Clerk		Female Clerk	
	Attempted	Successful	Attempted	Successful
Male	52	15(28.8%)	95	25(26.3%)
Female	32	10(31.3%)	84	24 (28.6%)

#### ■ Request of ID

Over three-quarters (77%, n=203) of the vendors asked the minor for proof of age. After requesting the picture ID, in 89% (n=180) of the cases a sale was not made to the minor

buyer. However, there were 23 (11%) instances where the vendor sold tobacco to minors even after seeing the proof of age.

Of the remaining twenty-three percent (n=59) where the vendor did not request proof of age, most (86%, n=51) sold tobacco to the minor buyers.

■ **Sale rate by county and health district**

The sale rate by county, health district, and geographical sampling unit are provided in Table 6, Table 7, and Form 06B. Also for reporting convenience, sale rates are presented on the next page as a GIS thematic map.

Table 6: Sale rate by county

<b>1997 SYNAR Non-Compliance Rate</b>		
County	Non Compliance Rate (%)	Total # of Outlets Inspected
1 (Beaver)	100.0	3
2 (Box Elder)	50.0	2
3 (Cache)	0.0	10
4 (Carbon)	50.0	4
6 (Davis)	0.0	13
8 (Emery)	40.0	5
9 (Garfield)	60.0	5
10 (Grand)	66.7	3
11 (Iron)	37.5	8
13 (Kane)	12.5	8
14 (Millard)	100.0	1
15 (Morgan)	0.0	1
18 (Salt Lake)	31.0	90
19 (San Juan)	60.0	5
20 (Sanpete)	0.0	2
21 (Sevier)	33.0	3
22 (Summit)	0.0	3
23 (Tooele)	40.0	5
25 (Utah County)	31.0	45
26 (Wasatch)	33.0	3
27 (Washington)	0.0	2
29 (Weber)	16.0	43
State of Utah	28.0	264

Table 7: Sale rate by health district

<b>1997 SYNAR Non-Compliance Rate</b>		
District	Non Compliance Rate (%)	Total # of Outlets Inspected
Bear River (Counties 2, 3, 17)	8.3	12
Central Utah (Counties 12, 14, 16, 20, 21, 28)	33.3	6
Davis County (County 6)	0.0	13
Salt Lake (County 18)	31.1	90
Southeastern Utah (counties 4, 8, 10, 19)	52.9	17
Southwest Utah (Counties 1, 9, 11, 13, 27)	38.5	26
Summit County (County 22)	0.0	3
Tooele County (County 23)	40.0	5
Tri-county (Counties 5, 7, 24)	-	-
Utah County (County 25)	31.1	45
Wasatch County (County 26)	33.3	3
Weber/Morgan (County 15, 29)	15.9	44
State of Utah	28.0	264



# SUMMARY OF TOBACCO RESULTS BY STATE GEOGRAPHIC SAMPLING UNIT

STATE\_Utah  
FFY\_\_\_\_1997

(1)			(2) No. Of Tobacco Outlets			(3) No. Of Outlets Randomly Inspected in FFY 1997			(4) No. Of Outlets Found in Violation During Random Inspections		
NO.	Geographic Sampling Unit	Percent of Youth Under 18	(a) Over the counter (OTC)	(b) Vending Machines	(c) Total Tobacco Outlets (2A+2B)	(a) Over the Counter (OTC)	(b) Vending Machines	(c) Total Tobacco Outlets (3A +3B)	(a) Over the Counter (OTC)	(b) Vending Machines	(c) Total Tobacco Outlets (4A+4b)
1	Beaver County	.34	17	0	17	3	0	3	3		3
2	Box Elder County	2.2	11	0	11	2	0	2	1		1
3	Cache County	4.2	37	0	37	10	0	10	0		0
4	Carbon County	1.00	7	0	7	4	0	4	2		2
5	Daggett County	.03	3	0	3	0	0	0	-		-
6	Davis County	11.4	46	0	46	13	0	13	0		0
7	Duchesne County	.75	11	0	11	0	0	0	-		-
8	Emery County	.57	16	0	16	5	0	5	2		2
9	Garfield County	.21	24	0	24	5	0	5	3		3
10	Grand County	.37	23	0	23	3	0	3	2		2
11	Iron County	1.26	27	0	27	8	0	8	3		3
12	Juab County	.33	6	0	6	0	0	0	-		-
13	Kane County	.27	24	0	24	8	0	8	1		1
14	Millard County	.67	10	0	10	1	0	1	1		1
15	Morgan County	.34	3	0	3	1	0	1	0		0
16	Piaute County	.06	4	0	4	0	0	0	-		-

(1)			(2) No. Of Tobacco Outlets			(3) No. Of Outlets Randomly Inspected in FFY 1997			(4) No. Of Outlets Found in Violation During Random Inspections		
NO.	Geographic Sampling Unit	Percent of Youth Under 18	(a) Over the counter (OTC)	(b) Vending Machines	(c) Total Tobacco Outlets (2A+2B)	(a) Over the Counter (OTC)	(b) Vending Machines	(c) Total Tobacco Outlets (3A +3B)	(a) Over the Counter (OTC)	(b) Vending Machines	(c) Total Tobacco Outlets (4A+4b)
17	Rich County	.09	2	0	2	0	0	0	-		-
18	Salt Lake County	39.67	275	0	275	90	0	90	28		28
19	San Juan County	.74	17	0	17	5	0	5	3		3
20	San Pete County	.97	15	0	15	2	0	2	0		0
21	Sevier County	.86	19	0	19	3	0	3	1		1
22	Summit County	1.06	28	0	28	3	0	3	0		0
23	Tooele County	1.26	24	0	24	5	0	5	2		2
24	Uintah County	1.32	13	0	13	0	0	0	-		-
25	Utah County	17.2	155	0	155	45	0	45	14		14
26	Wasatch County	.64	10	0	10	3	0	3	1		1
27	Washington County	3.40	74	0	74	2	0	2	0		0
28	Wayne County	.12	7	0	7	0	0	0	-		-
29	Weber County	8.57	132	0	132	43	0	43	7		7
Total			1040			264		264	74		74



### **Comparison of Synar compliance check studies for Fiscal Year 1996 and 1997**

In FY 97, a total of 264 completed inspections were done whereas only 188 were possible in FY 96. Even though it was not possible to reach the targeted number (370) of completed inspections this year (FY 97), the total number of completed inspections increased substantially over last year. This increase is especially noticeable in Salt Lake County. Only 33 compliance checks were possible in Salt Lake County last year whereas 90 completed inspections were done this year. The non-compliance rate for the State of Utah also slightly decreased from 29% in FY 96 to 28% in FY 97.

The list of tobacco outlets was significantly modified and kept updated in FY 97 compared to FY 96. The percent of tobacco outlets found to be not in business were 1.6% in FY 97 compared to 5.5% in last year. Also only .5% of the outlets were found to be duplicates this year compared to 1.6%.

Both studies show a consistent gender difference in the ability to purchase tobacco. Female buyers seem to be more successful than males in purchasing tobacco.

### **Conclusion**

As mentioned earlier, the objective of this study was to estimate the non-compliance rate for tobacco sales in Utah among youth under age 19. This was the second of five consecutive studies scheduled to be done annually in Utah starting in FY 96. By the end of the five years (in FY 2000), it is expected that the non-compliance rate for Utah will be reduced to 20%.

A weighting procedure was applied to estimate a statewide non-compliance rate this year. However, the weighted rate was the same as the unweighted rate. The Synar non-compliance rate for the State of Utah for FY 97 was estimated as 28%.

Although the response rate is much higher than last year, a few of the Utah's smaller counties were unable to participate in the study because of staff shortage and other barriers. Due to non-participation of these counties, the desired number of compliance checks was not possible. However, the partnership and collaboration of counties, local agencies, and state departments are more evident and stronger this year. The outlet list is more accurate and reliable. Hence, we expect to have the desired number of inspections completed next year.

## APPENDIX-A:

### GLOSSARY:

**Sample Size:** The statewide sample size was selected using the following formula:

$$n = Z^2 / e^2 (pq) \dots \dots \dots (1)$$

where n is the minimum sample size, e is the margin of error, p is the prevalence of the characteristic of interest, q is 1-p, Z is the normal deviant corresponding to the specified precision level, the value of Z is 1.96 for 95% level and 2.58 for 99% level.

The finite population correction factor was applied to the adjustment of sample size.

$$\text{Finite Correction : } [n / (1 + n/N)] \dots \dots \dots (2)$$

Where N is the total number of tobacco outlets in the state of Utah and n is the total number of sampled outlets.

### **Stratified random sampling:**

Using proportional allocation, the sample size for the ith stratum is

$n_i = [n N_i (P_i Q_i)^{1/2}] / \sum N_i (P_i Q_i)^{1/2}$ .  $n_i$  is the sample size for the ith stratum. Sum of  $N_i = N$  and sum of  $n_i = n$ . N is the total number of outlets in Utah, and n is the sample size for Utah.

If we assume  $P_i = Q_i = .5$ ,  $n_i = n(N_i/N)$

Hence, the sample size for the ith county would be:  $n_i = n(N_i/N) \dots \dots \dots (3)$

The estimate of the proportion appropriate to the stratified random sampling is

$$p_{st} = \sum (N_i p_i) / N \dots \dots \dots (4)$$

$p_i$  is the estimate of proportion of outlets in violation in the ith stratum.

$$\text{And } V(p_{st}) = [(1-f)/n] \sum W_i P_i Q_i \dots \dots \dots (5)$$

Where  $V(p_{st})$  is the standard error of the the estimate ( $p_{st}$ ),  $W_i = N_i/N$ , estimate of

$P_i Q_i = (n_i p_i q_i) / (n_i - 1)$ ,  $f = (n/N)$ .

(*Sampling Technique*, Cochran, 1963, p:87-107).

## **APPENDIX-B:**

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